# SCHEMATIC DIAGRAMS AND PARTS LISTS

B&K PRECISION 1570

## 70 MHz

# QUAD-TRACE OSCILLOSCOPE

| SCHEMATIC SYMBOL | DESCRIPTION | DYNASCAN PART NO. |
|---|---|---|

**CHASSIS ASSEMBLY**
(Y70-1360-00)

**RESISTORS**

Standard value resistors are not listed. These are readily available from your local parts distributor. See schematic diagram for value. Unless specified otherwise on schematic, such resistors are ±5%, 1/4 W.

| | | |
|---|---|---|
| VR1/S21, VR2/S22 | 3 kΩ Potentiometer with Push-Pull Switch, V. POSITION and PULL X5 GAIN Control | 008-406-9-001 |
| VR3/S27 | Dual 5 kΩ Potentiometer with Rotary Switch, HOLDOFF and TRACE SEP Control | 008-406-9-003 |
| VR4/S28 | Dual 5 kΩ Potentiometer with Push-Pull Switch, H. POSITION and PULL X10 MAG Control | 008-406-9-002 |
| VR5 | 1 kΩ Multi-Turn Precision Potentiometer, DELAY TIME MULTIPLIER Control | 008-406-9-004 |

**CAPACITORS**

| | | |
|---|---|---|
| C1, 2 | .047 µF 630 V Metal Film | 033-023-9-001 |
| C4, 5 | 4700 pF +100/-0%, 2 kV Ceramic Disc | 020-124-9-004 |
| C6 | 100 pF ±5%, 50 V Ceramic Disc | 020-142-9-007 |
| C7 | 3 pF ±0.25pF, 50 V Ceramic Disc | 020-283-9-011 |
| C8, 9 | 68 pF ±5%, 50 V Ceramic Disc | 020-215-9-008 |
| C10 | 0.1 µF, 600 V Oil Capacitor (use two for 0.2 µF value) | 024-009-9-002 |

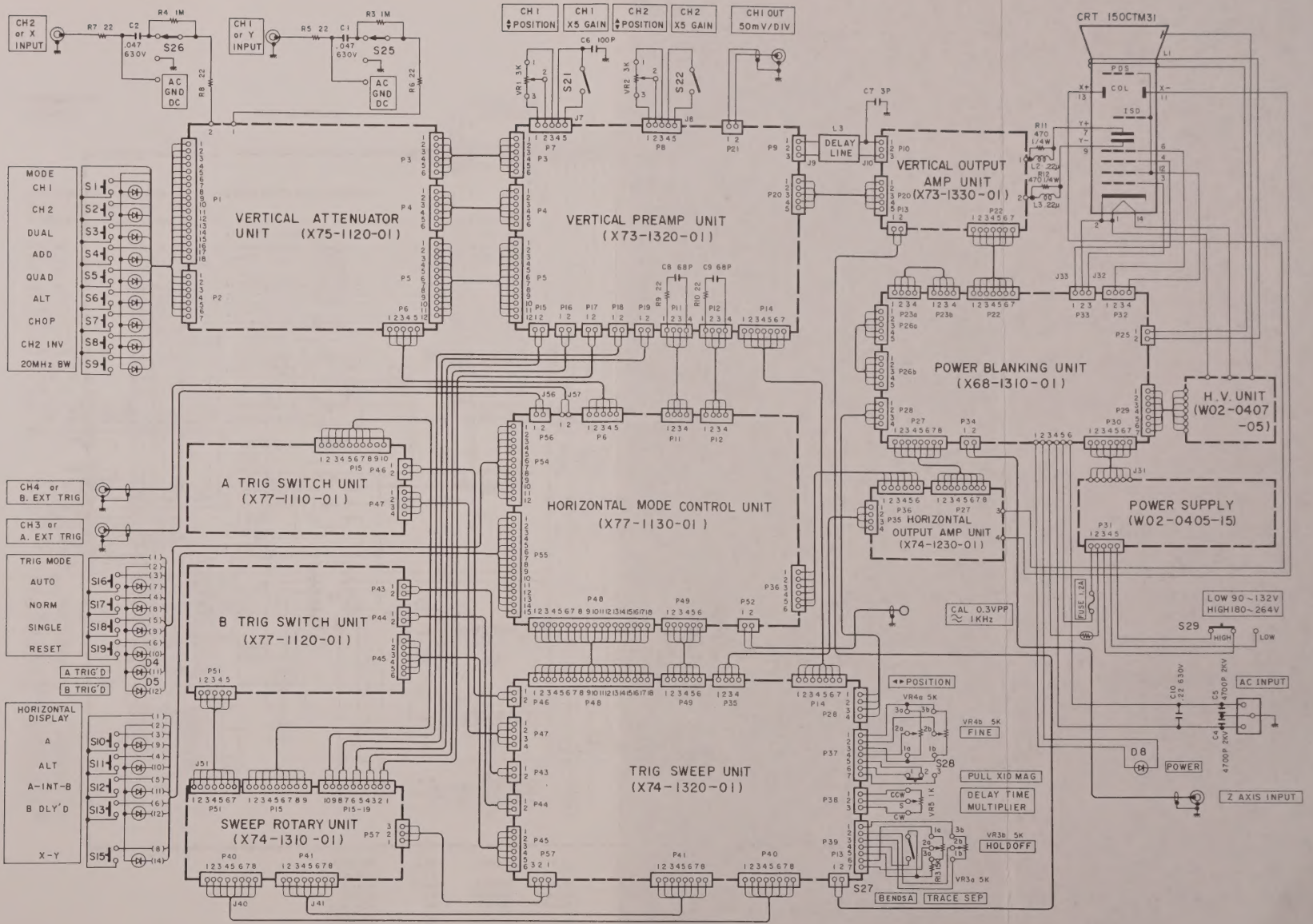
**INDICATORS**

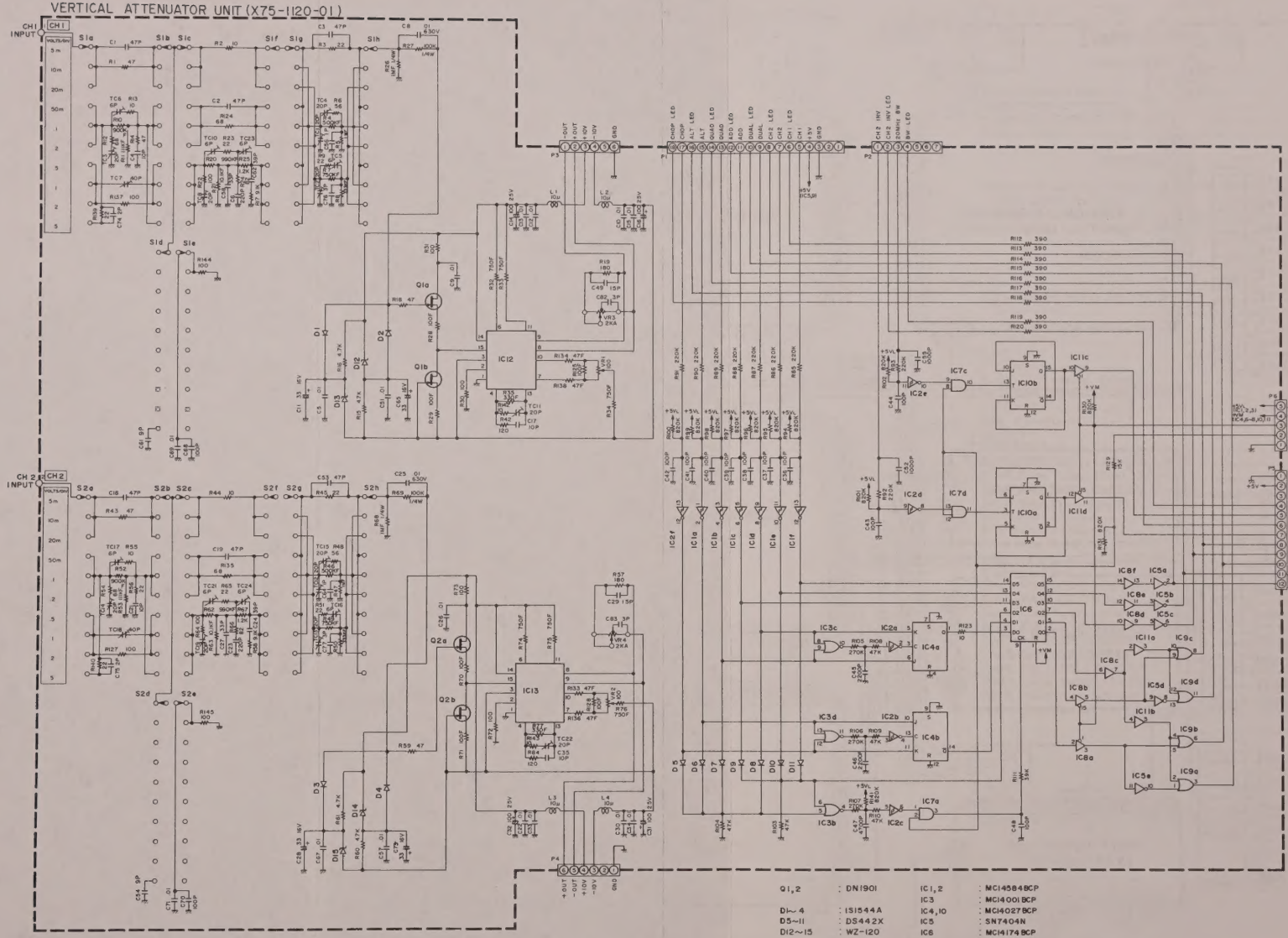
| | | |
|---|---|---|
| D4-5 | LED | 158-039-9-002 |
| D8 | LED, POWER Pilot Light | 400-072-9-001 |

**COMPOSITE**
**499-232-9-001**

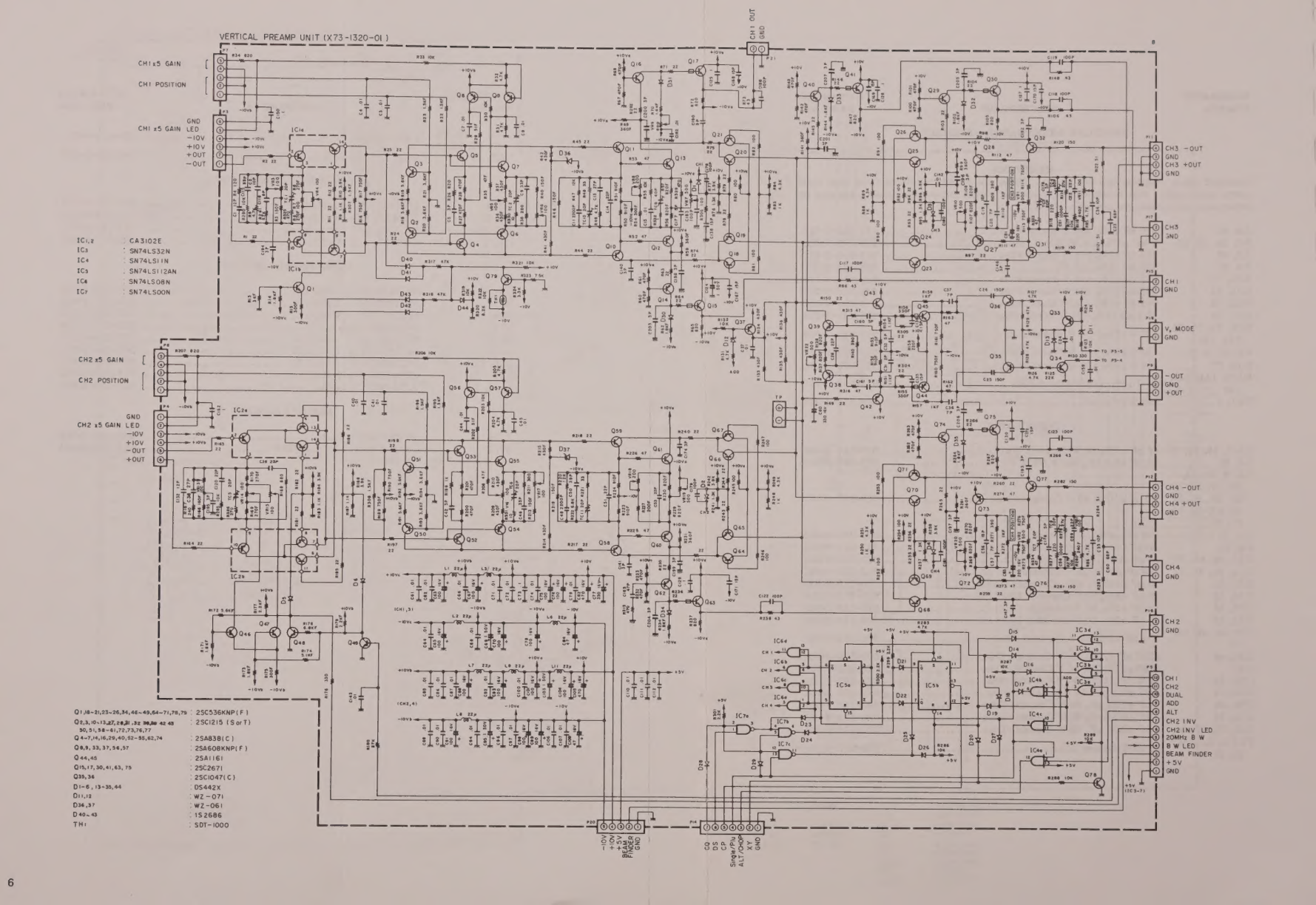
ORBIT C 8/11/83
16273T 1-1
780-3071
VOL 1 494-117-9-001

| SCHEMATIC SYMBOL | DESCRIPTION | DYNASCAN PART NO. |
|---|---|---|
| | **INDUCTORS** | |
| L1 | Trace Rotation Coil | 041-133-9-001 |
| L3 | Delay Line | 040-001-9-001 |
| L4, 5 | Axial Coil, .22 μH | 041-140-9-001 |
| | Ferrite Bead | 040-004-9-001 |
| | **SWITCHES** | |
| S1-13, 15-19 | Pushbutton Switch, V MODE, H MODE, TRIG MODE (18 used) | 088-069-9-002 |
| S25, 26 | 3-Position Lever Switch, AC-GND-DC | 084-097-9-001 |
| S29 | Slide Switch, Line Voltage Select | 084-022-9-003 |
| | **MISCELLANEOUS** | |
| ELECTRICAL PARTS | | |
| | High Voltage Power Supply Assembly (W02-0402-25) | 157-022-9-001 |
| | Switching Power Supply Assembly (W02-0405-15) | 523-433-9-001 |
| | Fuse, 1.2 A | 191-017-9-001 |
| | Fuseholder | 742-040-9-001 |
| | Power Thermistor, 4W-25V | 005-007-9-001 |
| | CRT, 150CTM31 | 230-022-9-001 |
| | CRT Socket | 749-080-9-001 |
| | BNC Receptacle | 773-090-9-001 |
| MECHANICAL PARTS | | |
| | Case | 272-161-9-001 |
| | Front Panel Inlay, Left (Vertical) | 260-326-9-001 |
| | Front Panel Inlay, Right (Sweep) | 260-327-9-001 |
| | Front Panel Inlay, Center (Intensity) | 260-277-9-001 |
| | Bezel/Blue Filter for CRT | 380-441-9-001 |
| | RF Shield Gasket | 769-125-9-001 |
| | PCB Support (Plastic) | 759-135-9-001 |
| | Cord Wrap/Foot | 380-338-9-006 |
| | Rubber Foot | 381-100-9-001 |
| | Extension Shaft | 763-166-9-001 |
| | Knob, VOLTS/DIV (2 used) | 751-186-9-001 |
| | Knob, VARIABLE (3 used) | 751-207-9-001 |
| | Knob, SLOPE, etc. (5 used) | 751-207-9-002 |
| | Knob, FOCUS, POWER, etc. (4 used) | 751-207-9-003 |
| | Knob, A SWEEP TIME/DIV | 751-207-9-004 |
| | Knob, B SWEEP TIME/DIV | 751-207-9-005 |
| | Knob, CH 3, CH 4 POSITION | 751-207-9-006 |
| | Knob, Lever Switch (5 used) | 751-186-9-004 |
| | Knob, Pushbutton (18 used) | 751-207-9-009 |
| | Instruction Manual | 480-339-9-001 |

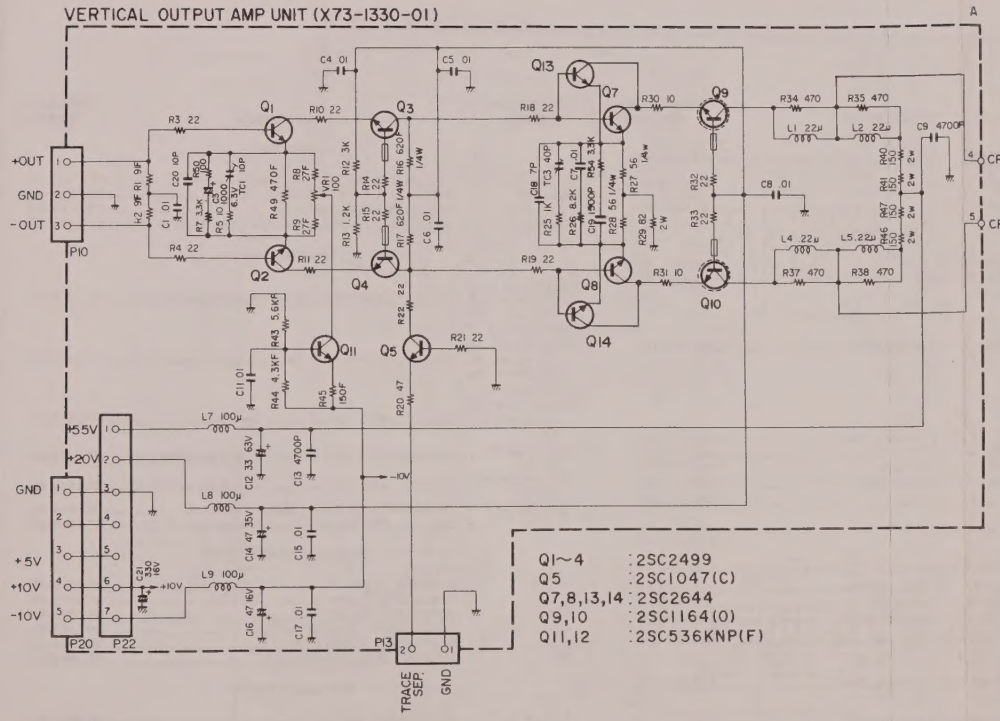

CH2 or X INPUT
CH1 or Y INPUT
CH1 POSITION
CH1 X5 GAIN
CH2 POSITION
CH2 X5 GAIN
CH1 OUT 50mV/DIV
CRT 150CTM31
MODE
CH1
CH2
DUAL
ADD
QUAD
ALT
CHOP
CH2 INV
20MHz BW
VERTICAL ATTENUATOR UNIT (X75-1120-01)
VERTICAL PREAMP UNIT (X73-1320-01)
DELAY LINE
VERTICAL OUTPUT AMP UNIT (X73-1330-01)
POWER BLANKING UNIT (X68-1310-01)
H.V. UNIT (W02-0407-05)
POWER SUPPLY (W02-0405-15)
HORIZONTAL MODE CONTROL UNIT (X77-1130-01)
HORIZONTAL OUTPUT AMP UNIT (X74-1230-01)
A TRIG SWITCH UNIT (X77-1110-01)
B TRIG SWITCH UNIT (X77-1120-01)
TRIG SWEEP UNIT (X74-1320-01)
SWEEP ROTARY UNIT (X74-1310-01)
CH4 or B. EXT TRIG
CH3 or A. EXT TRIG
TRIG MODE
AUTO
NORM
SINGLE
RESET
A TRIG'D
B TRIG'D
HORIZONTAL DISPLAY
A
ALT
A-INT-B
B DLY'D
X-Y
CAL 0.3VPP 1KHz
FUSE 1.2A
LOW 90~132V
HIGH180~264V
AC INPUT
POWER
Z AXIS INPUT
POSITION
FINE
PULL XID MAG
DELAY TIME MULTIPLIER
HOLDOFF
BENOSA
TRACE SEP


VERTICAL ATTENUATOR UNIT (X75-1120-01)
CH1 INPUT
CH2 INPUT
Q1,2 : DN1901
D1~4 : 1S1544A
D5~11 : DS442X
D12~15 : WZ-120
IC1,2 : MC14584BCP
IC3 : MC14001BCP
IC4,10 : MC14027BCP
IC5 : SN7404N
IC6 : MC14174BCP
IC7 : MC14081BCP
IC8,11 : MC14503BCP
IC9 : SN7432N
IC12,13 : ATM-4010

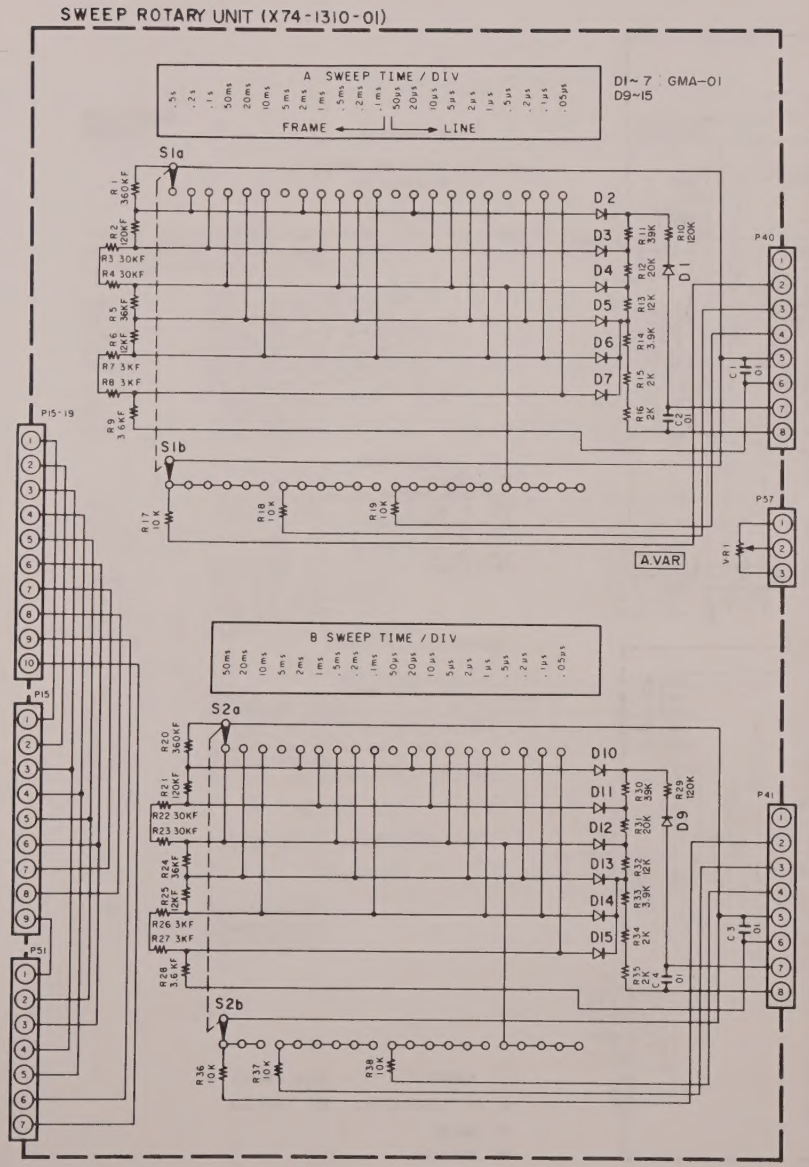
| SCHEMATIC SYMBOL | DESCRIPTION | DYNASCAN PART NO. |
|---|---|---|
| | **VERTICAL ATTENUATOR ASSEMBLY** (X75-1120-01) | |
| | **RESISTORS** | |
| | Standard value resistors are not listed. These are readily available from your local parts distributor. See schematic diagram for value. Unless specified otherwise on schematic, such resistors are ±5%, 1/6 W. | |
| R4, 46 | 500 kΩ ±1%, 1/4 W Metal Film | 013-034-9-018 |
| R5, 26, 47, 68 | 1 MΩ ±1%, 1/4 W Metal Film | 013-008-9-023 |
| R7, 49 | 750 kΩ ±1%, 1/4 W Metal Film | 013-052-9-019 |
| R8, 50 | 333 kΩ ±1%, 1/4 W | 004-193-9-003 |
| R10, 52 | 900 kΩ ±1%, 1/4 W Metal Film | 013-010-9-011 |
| R11, 53 | 111 kΩ ±1%, 1/4 W Metal Film | 013-034-9-036 |
| R20, 62 | 990 kΩ ±1%, 1/4 W Metal Film | 013-010-9-012 |
| R21, 63 | 10.1 kΩ ±1%, 1/4 W Metal Film | 013-034-9-035 |
| R28, 29, 70, 71, 125, 128 | 100 Ω ±1%, 1/8 W Metal Film | 013-052-9-040 |
| R32-34, 74-76 | 750 Ω ±1%, 1/8 W Metal Film | 013-052-9-017 |
| R35, 77 | 330 Ω ±1%, 1/8 W Metal Film | 013-052-9-016 |
| R133, 134, 136, 138 | 47 Ω ±1%, 1/8 W Metal Film | 013-052-9-035 |
| VR1, 2 | 100 Ω Trimpot | 008-434-9-002 |
| | **CAPACITORS** | |
| C1-3, 18, 19, 53 | 47 pF ±5%, 50 V Ceramic Disc | 020-149-9-006 |
| C4, 21 | 10 pF ±0.5 pF, 100 V Mica | 023-064-9-002 |
| C5, 9, 10, 12, 13, 15, 22, 26, 30, 33, 34, 51, 57, 63, 67, 69, 71, 72 | .01 µF ±10%, 50 V Ceramic Disc | 020-296-9-001 |
| C6, 23 | 220 pF ±5%, 100 V Mica | 023-059-9-002 |
| C8, 25 | .01 µF, 630 V Metal Film | 033-023-9-002 |
| C11, 28, 65, 73 | 33 µF ±20%, 16 V Electrolytic | 022-226-9-008 |
| C14, 16, 31, 32 | 100 µF ±20%, 25 V Electrolytic | 022-226-9-002 |
| C17, 35 | 10 pF ±0.5pF, 50 V Ceramic Disc | 020-215-9-001 |
| C24, 62 | 39 pF ±5%, 50 V Ceramic Disc | 020-171-9-006 |
| C27, 58 | 33 pF ±5%, 50 V Ceramic Disc | 020-238-9-001 |
| C29, 49 | 15 pF ±5%, 50 V Ceramic Disc | 020-171-9-002 |
| C36-44, 48, 68, 70 | 100 pF ±5%, 50 V Ceramic Disc | 020-142-9-007 |
| C45, 46 | 2200 pF ±10%, 50 V Ceramic Disc | 020-296-9-004 |
| C47 | 4700 pF ±10%, 50 V Ceramic Disc | 020-302-9-001 |
| C52, 55 | 1000 pF ±10%, 50 V Ceramic Disc | 020-249-9-001 |
| C54, 61 | 8 pF ±0.5 pF, 50 V Ceramic Disc | 020-302-9-002 |
| C56, 64 | 1 pF ±0.25 pF, 50 V Ceramic Disc | 020-142-9-001 |
| C74, 75 | 2 pF ±0.25 pF, 50 V Ceramic Disc | 020-234-9-003 |
| C76, 77, 82, 83 | 3 pF ±0.25 pF, 50 V Ceramic Disc | 020-223-9-001 |
| TC1-4, 8, 11-15, 19, 22 | 20 pF Trimmer | 028-057-9-001 |
| TC5, 6, 10, 16, 17, 21, 23, 24 | 6 pF Trimmer | 028-065-9-003 |
| TC7, 18 | 40 pF Trimmer | 028-069-9-001 |
| | **DIODES AND TRANSISTORS** | |
| D1-4 | 1S1544A, Silicon Diode | 151-096-9-001 |
| D5-11 | DS442X, Silicon Switching Diode | 151-097-9-001 |
| D12-15 | WZ-120, 12 V Zener Diode | 152-110-9-001 |
| Q1, 2 | DN1901, Dual FET | 182-070-9-001 |
| | **INTEGRATED CIRCUITS** | |
| IC1, 2 | MC14584BCP, CMOS IC | 307-259-9-007 |
| IC3 | MC14001BCP, CMOS IC | 307-259-9-001 |
| IC4, 10 | MC14027BCP, CMOS IC | 307-259-9-016 |
| IC5 | SN7404N, Digital IC | 307-259-9-014 |
| IC6 | MC14174BCP, CMOS IC | 307-259-9-005 |
| IC7 | MC14081BCP, CMOS IC | 307-259-9-017 |
| IC8, 11 | MC14503BCP, CMOS IC | 307-259-9-006 |
| IC9 | SN7432N, Digital IC | 307-259-9-015 |
| IC12, 13 | ATM-4020, Custom Linear IC | 307-309-9-001 |
| | **MISCELLANEOUS** | |
| L1-4 | 10 µH Ferri-Inductor | 041-133-9-006 |
| S1, 2 | Rotary Switch, VOLTS/DIV | 083-286-9-001 |


VERTICAL PREAMP UNIT (X73-1320-01)
CH1 ×5 GAIN
CH1 POSITION
GND
LED
−10V
+10V
+OUT
−OUT
CH1 OUT
GND
CH2 ×5 GAIN
CH2 POSITION
CH3 −OUT
GND
CH3 +OUT
CH3
GND
CH1
GND
V. MODE
GND
−OUT
GND
+OUT
CH4 −OUT
GND
CH4 +OUT
CH4
GND
CH2
GND
CH1
CH2
DUAL
ADD
ALT
CH2 INV
CH2 INV LED
20MHz B W
B W LED
BEAM FINDER
+5V
GND
−10V
+10V
BEAM FIND
BEAM FIND LED
GND
SQ
CS
CH
Single/Plus ALT/CHOP
X-Y
GND
IC1,2 : CA3102E
IC3 : SN74LS32N
IC4 : SN74LS11N
IC5 : SN74LS112AN
IC6 : SN74LS08N
IC7 : SN74LS00N
Q1,10-21,23-26,34,46-49,64-71,78,79 : 2SC536KNP(F)
Q2,3,10-13,27,28,31-33,38,39,42,43,50,51,58-61,72,73,76,77 : 2SC1215 (S or T)
Q4-7,14,16,29,40,52-55,62,74 : 2SA838(C)
Q8,9,33,37,56,57 : 2SA608KNP(F)
Q44,45 : 2SA1161
Q15,17,30,41,63,75 : 2SC2671
Q35,36 : 2SC1047(C)
D1-6,13-35,44 : DS442X
D11,12 : WZ-071
D36,37 : WZ-061
D40-43 : 1S2686
TH1 : SDT-1000

| SCHEMATIC SYMBOL | DESCRIPTION | DYNASCAN PART NO. |
|---|---|---|
| | **VERTICAL PREAMP ASSEMBLY (X73-1320-01)** | |
| | **RESISTORS** | |
| | Standard value resistors are not listed. These are readily available from your local parts distributor. See schematic diagram for value. Unless specified otherwise on schematic, such resistors are ±5%, 1/6 W. | |
| R6, 8, 169, 170 | 270 Ω ±1%, 1/8 W Metal Film | 013-052-9-021 |
| R13 | 3 kΩ ±1%, 1/8 W Metal Film | 013-052-9-023 |
| R[illegible] 62, 102, [illegible] 4, 171, 173 234, 264 | 1.8 kΩ ±1%, 1/8 W Metal Film | 013-052-9-044 |
| R15, 54, 175 | 300 Ω ±1%, 1/8 W Metal Film | 013-052-9-039 |
| R[illegible] 17, 113, [illegible] 14, 160, 161, 189, 190, 275, 276 | 750 Ω ±1%, 1/8 W Metal Film | 013-052-9-017 |
| R[illegible] 19, 172, [illegible] 91, 192 | 5.6 kΩ ±1%, 1/8 W Metal Film | 013-052-9-004 |
| R[illegible] 21, 193, 194 | 3.6 kΩ ±1%, 1/8 W Metal Film | 013-052-9-002 |
| R[illegible] 23, 195, [illegible] 96, 307, 308 | 1.5 kΩ ±1%, 1/8 W Metal Film | 013-052-9-002 |
| R[illegible] 28, 60, 61, 67, 68, 100, 101, 142, 143, [illegible] 00, 201, 232, 33, 262, 263 | 470 Ω ±1%, 1/8 W Metal Film | 013-052-9-027 |
| R29, 202 | 51 Ω ±1%, 1/8 W Metal Film | 013-052-9-036 |
| R35, 208 | 47 Ω ±1%, 1/8 W Metal Film | 013-052-9-035 |
| R[illegible] 5, 37, 41, 42, [illegible] 33-136, 209, 210, 214, 215 | 430 Ω ±1%, 1/8 W Metal Film | 013-052-9-041 |
| R3, 40, 46, 166, [illegible] 13, 219 | 150 Ω ±1%, 1/8 W Metal Film | 013-052-9-031 |
| R[illegible] 51, 152, [illegible] 53, 223, 224 | 910 Ω ±1%, 1/8 W Metal Film | 013-052-9-042 |
| R56, 57, 107, [illegible] 08, 137, 138, [illegible] 9, 230, 269, 270 | 820 Ω ±1%, 1/8W Metal Film | 013-052-9-012 |
| R59, 69, 99, 141, 231, 261 | 360 Ω ±1%, 1/8 W Metal Film | 013-052-9-011 |
| R[illegible] 77, 179 | 2.2 kΩ ±1%, 1/8 W Metal Film | 013-052-9-028 |
| R[illegible] 0 | 1.6 kΩ ±1%, 1/8 W Metal Film | 013-052-9-033 |
| R[illegible] 110, 157, 159, 272 | 1 kΩ ±1%, 1/8 W Metal Film | 013-052-9-043 |
| R[illegible] 18, 280 | 240 Ω ±1%, 1/8 W Metal Film | 013-052-9-037 |
| R[illegible] 40 | 390 Ω ±1%, 1/8 W Metal Film | 013-065-9-001 |
| R[illegible] 51, 154 | 1.1 kΩ ±1%, 1/8 W Metal Film | 013-052-9-047 |
| R155, 156 | 330 Ω ±1%, 1/8 W Metal Film | 013-052-9-016 |
| P[illegible] 58 | 220Ω±1%, 1/8W Metal Film | 013-052-9-020 |
| R[illegible] 74 | 5.1 kΩ±1%, 1/8W Metal Film | 013-052-9-003 |
| R[illegible] 78 | 6.8 kΩ±1%, 1/8W Metal Film | 013-052-9-025 |
| R227 | 220Ω±1%, 1/8W Metal Film | 013-052-9-025 |
| VR1, 2 | 500Ω Potentiometer, CH3 & 4 POSITION | 008-406-9-020 |
| VR3, 4, 5, 6, 11, 13~17, 21 | 100 Ω Trimpot | 008-434-9-002 |
| VR7, 9, 10, 19, 20, 22 | 500 Ω Trimpot | 008-434-9-003 |
| VR8, 18 | 200 Ω Trimpot | 008-434-9-001 |
| | **CAPACITORS** | |
| C1, 132 | 12pF±5%, 50V, Ceramic Disc | 000-000-0-000 |
| C2, 34, 35 | 10 pF±0.5 pF, 50V Ceramic Disc | 020-215-9-001 |
| C3, 4, 7, 8, 15, 24, 27, 40, 41, 44, 45, 61, 62, 64, 66, 68, 71, 72, 74, 79, 85-87, 89, 90, 92, 94, 96, 97, 100, 106, 107, 110-112, 142, 143, 159, 182 | .01 µF ±10%, 50 V Ceramic Disc | 020-296-9-001 |
| C31 | 2 pF ±0.25 pF, 50 V Ceramic Disc | 020-234-9-003 |
| C9, 46, 115 | 33 pF ±5%, 50 V Ceramic Disc | 020-238-9-001 |
| C11, 48 | 2200 pF ±10%, 50 V Ceramic Disc | 020-296-9-004 |
| C13, 38 | 27 pF ±5%, 50 V Ceramic Disc | 020-215-9-003 |
| C14, 22, 28, 39, 51, 53, 59, 120 | 22 pF ±5%, 50 V Ceramic Disc | 020-215-9-002 |
| C19, 56, 135, 136, 138 167-172 | 15 pF ±5%, 50V Ceramic Disc | 020-171-9-002 |
| C20, 36, 37, 57 | 7 pF ±0.5 pF, 50 V Ceramic Disc | 020-149-9-001 |
| C21, 58 | 1000 pF ±10%, 50 V Ceramic Disc | 020-249-9-001 |
| C23, 60 | 68 pF ±5%, 50 V Ceramic Disc | 020-144-9-005 |
| C25, 26 | 150 pF ±5%, 50 V Ceramic Disc | 020-171-9-008 |
| C32, 160, 161, 175-177 | 5 pF ±5%, 50 V Ceramic Disc | 020-233-9-002 |
| C5, 42, 140, 141, 146, 147, 174, 190, 192~201, 203~207 | 3 pF ±0.25 pF, 50 V Ceramic Disc | 020-233-9-001 |
| C50 | 39 pF ±5%, 50 V Ceramic Disc | 020-171-9-006 |
| C63, 65, 67, 70, 75, 76, 78, 88, 91, 93, 98, 99, 101, 104 | 100 µF ±20%, 16 V Electrolytic | 022-225-9-002 |
| C73, 125, 127~130, 150, 162 | 0.1 µF, 12 V Semiconductor Ceramic | 033-018-9-001 |
| C77, 80 | 330 µF ±20%, 16 V Electrolytic | 022-238-9-001 |
| C81, 83 | 220 µF ±20%, 16 V Electrolytic | 022-226-9-018 |
| C82, 105 | 470 µF ±20%, 16 V Electrolytic | 022-226-9-006 |
| C84, 109 | 47 µF ±20%, 16 V Electrolytic | 022-226-9-012 |
| C116 | 8 pF ±0.5 pF, 50 V Ceramic Disc | 020-302-9-002 |
| C117, 118, 119, 122, 123, 126, 178-181, 183 | 100 pF ±5%, 50 V Ceramic Disc | 020-096-9-006 |
| C69, 95, 103 124 | 1 µF, 50V Electrolytic | 033-054-9-002 |
| C163 | 47 pF±5%, 50V Ceramic Disc | 020-149-9-006 |
| TC~8, 10, 11 | 20 pF Trimmer | 028-057-9-001 |
| TC9 | 40 pF Trimmer | 028-069-9-001 |
| | **DIODES** | |
| D1-6, 13-35, 44 | DS442X, Silicon Switching Diode | 151-097-9-001 |
| D11, 12 | WZ-071, 7.1 V Zener Diode | 152-075-9-001 |
| D36, 37 | WZ-061, 6.1 V Zener Diode | 152-052-9-002 |
| D40-43 | 1S2686, Silicon Diode, Variable Capacitance | 151-097-9-002 |
| | **TRANSISTORS** | |
| Q1, 18-21, 23-26, 34, 46-49, 64-71, 78, 79 | 2SC536KNP-F, NPN Silicon Signal Transistor | 176-114-9-001 |
| Q2, 3, 10-13, 27, 28, 31, 32, 38, 39, 42, 43, 50, 51, 58-61, 72, 73, 76, 77 | 2SC1215-T or -S, NPN Silicon Signal Transistor | 176-114-9-003 |
| Q4-7, 14, 16, 29, 40, 52-55, 62, 74 | 2SA838C, PNP Silicon Signal Transistor | 177-036-9-001 |
| Q8, 9, 33, 37, 56, 57 | 2SA608KNP-F, PNP Silicon Signal Transistor | 177-048-9-001 |
| Q15, 17, 30, 41, 63, 75 | 2SC2671, NPN Silicon Signal Transistor | 176-130-9-001 |
| Q35, 36 | 2SC1047-C NPN Silicon Signal Transistor | 176-075-9-001 |
| Q44, 45 | 2SA1161, PNP Silicon Signal Transistor | 177-048-9-003 |
| | **INTEGRATED CIRCUITS** | |
| IC1, 2 | CA3102E, Linear IC | 307-259-9-018 |
| IC3 | SN74LS32N, Digital IC | 307-259-9-024 |
| IC4 | SN74LS11N, Digital IC | 307-259-9-023 |
| IC5 | SN74LS112AN, Digital IC | 307-259-9-025 |
| IC6 | SN47LS08N, Digital IC | 307-259-9-010 |
| IC7 | SN74LS00N, Digital IC | 307-259-9-002 |
| | **MISCELLANEOUS** | |
| L1-3, 6-9, 11 | 22 µH Ferri-Inductor | 041-068-9-004 |
| | Ferrite Core, Bead Type | 040-004-9-002 |
| TH1 | Thermistor, SDT-1000 | 005-003-9-002 |




| SCHEMATIC SYMBOL | DESCRIPTION | DYNASCAN PART NO. |
|---|---|---|
| | **VERTICAL OUTPUT AMPLIFIER ASSEMBLY** (X73-1330-01) | |
| | **RESISTORS** | |
| | Standard value resistors are not listed. These are readily available from your local parts distributor. See schematic diagram for value. Unless specified otherwise on schematic, such resistors are ±5%, 1/6 W. | |
| R1, 2 | 91Ω±1%, 1/8W Metal Film | 013-052-9-049 |
| R8, 9 | 27 Ω ±1%, 1/8 W Metal Film | 013-052-9-048 |
| R16, 17 | 620 Ω ±1%, 1/4 W Metal Film | 013-064-9-002 |
| R29 | 82 Ω ±5%, 2W Metal Film | 013-054-9-001 |
| R40, 41, 46, 47 | 150 Ω ±5%, 2W Metal Film | 013-054-9-002 |
| R43 | 5.6 kΩ ±1%, 1/8 W Metal Film | 013-052-9-004 |
| R44 | 4.3 kΩ ±1%, 1/8 W Metal Film | 013-052-9-051 |
| R45 | 150 Ω ±1%, 1/8 W Metal Film | 013-052-9-031 |
| R49 | 470 Ω ±1%, 1/8 W Metal Film | 013-052-9-027 |
| VR1 | 100 Ω Trimpot | 008-434-9-004 |
| | **CAPACITORS** | |
| C1, 4-8, 11, 15, 17 | .01 µF ±10%, 50 V Ceramic Disc | 020-296-9-001 |
| C3 | 1000 µF ±20%, 6.3 V Electrolytic | 022-226-9-019 |
| C9, 13 | 4700 pF ±10%, 500 V Ceramic Disc | 020-302-9-003 |
| C12 | 33 µF ±20%, 63 V Electrolytic | 022-226-9-005 |
| C14 | 47 µF ±20%, 35 V Electrolytic | 022-226-9-004 |
| C16 | 47 µF ±20%, 16 V Electrolytic | 022-226-9-012 |
| C18 | 7 pF ±0.25 pF, 50 V Ceramic Disc | 020-142-9-002 |
| C19 | 1500 pF ±10%, 50 V Ceramic Disc | 020-296-9-003 |
| C20 | 10 pF ±0.5 pF, 50 V Ceramic Disc | 020-215-9-001 |
| C21 | 330 µF ±20%, 16 V Electrolytic | 022-238-9-001 |
| TC1 | 10 pF Trimmer | 028-065-9-002 |
| TC3 | 40 pF Trimmer | 028-065-9-005 |
| | **TRANSISTORS** | |
| Q1-4 | 2SC2499, NPN Silicon Signal Transistor | 176-114-9-006 |
| Q5 | 2SC1047-C, NPN Silicon Signal Transistor | 176-075-9-001 |
| Q7, 8, 13, 14 | 2SC2644, NPN Silicon Signal Transistor | 176-114-9-008 |
| Q9, 10 | 2SC1164-O, NPN Silicon Signal Transistor | 176-114-9-007 |
| Q11 | 2SC536KNP-F, NPN Silicon Signal Transistor | 176-114-9-001 |
| | **MISCELLANEOUS** | |
| L1, 2, 4, 5 | 0.22 µH Ferri-Inductor | 041-133-9-009 |
| L7-9 | 100 µH Ferri-Inductor | 041-124-9-001 |
| | Ferrite Core, Bead Type | 040-004-9-002 |




| SCHEMATIC SYMBOL | DESCRIPTION | DYNASCAN PART NO. |
|---|---|---|

**SWEEP ROTARY SWITCH ASSEMBLY**
(X74-1310-01)

**RESISTORS**

Standard value resistors are not listed. These are readily available from your local parts distributor. See schematic diagram for value. Unless specified otherwise on schematic, such resistors are ±5%, 1/6 W.

| | | |
|---|---|---|
| R1, 20 | 360 kΩ ±1%, 1/8 W Metal Film | 013-051-9-002 |
| R2, 21 | 120 kΩ ±1%, 1/8 W Metal Film | 013-053-9-005 |
| R3, 4, 22, 23 | 30 kΩ ±1%, 1/8 W Metal Film | 013-073-9-005 |
| R5, 24 | 36 kΩ ±1%, 1/8 W Metal Film | 013-053-9-004 |
| R6, 25 | 12 kΩ ±1%, 1/8 W Metal Film | 013-053-9-003 |
| R7, 8, 26, 27 | 3 kΩ ±1%, 1/8 W Metal Film | 013-052-9-023 |
| R9, 28 | 3.6 kΩ ±1%, 1/8 W Metal Film | 013-053-9-002 |

**CAPACITORS**

| | | |
|---|---|---|
| C1-4 | .01 µF ±20%, 50 V Ceramic Disc | 020-296-9-001 |

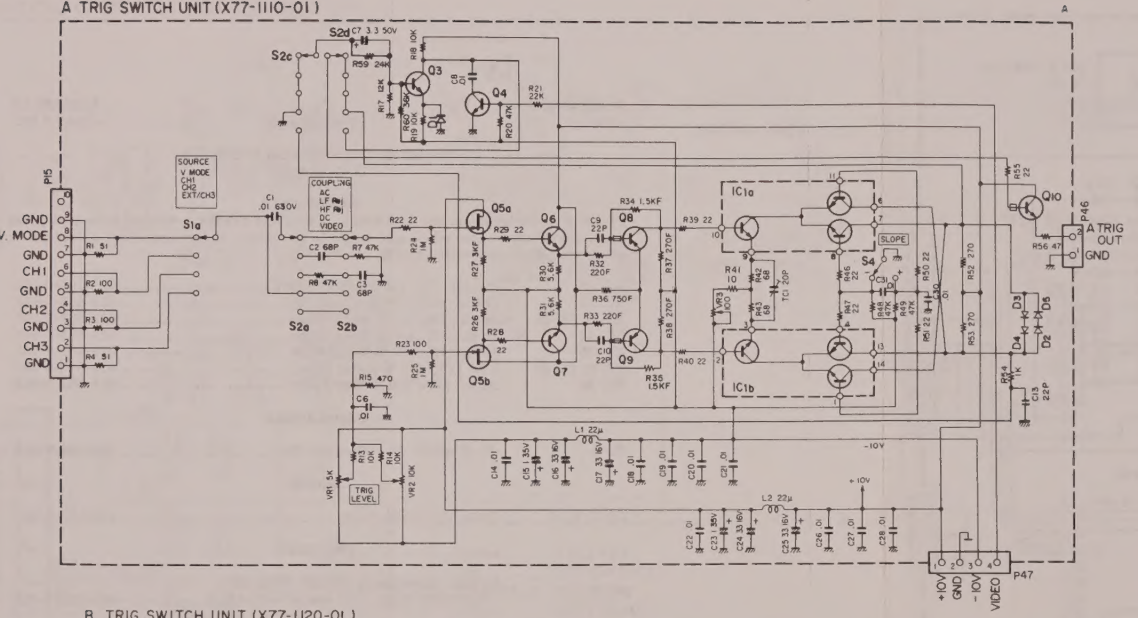
**DIODES**

| | | |
|---|---|---|
| D1-7, 9-15 | GMA-01, Silicon Diode | 151-111-9-001 |

**SWITCHES**

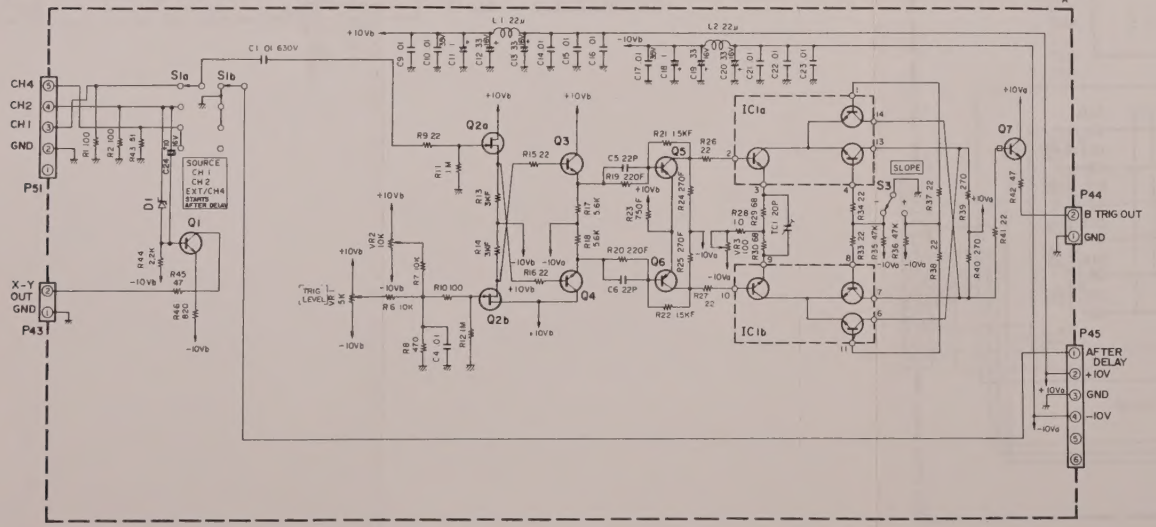
| | | |
|---|---|---|
| S1, 2 | Switch Assembly, A SWEEP TIME/DIV, B SWEEP TIME/DIV, and A VARIABLE | 083-286-9-002 |

## A TRIG SWITCH UNIT (X77-1110-01)




IC1 :CA3102E
Q3,4 :2SC536KNP(F)
Q5 :DN1901
Q6,7 :2SC1215(T or S)
Q8,9 :2SA1161
Q10 :2SC2671
D1~5:DS442X

## B TRIG SWITCH UNIT (X77-1120-01)




IC1 : CA3102E
Q1,3,4 :2SC1215TorS
Q2 :DN1901
Q7 :2SC2499
Q5,6 : 2SA1161
D1 : WZ-081

| SCHEMATIC SYMBOL | DESCRIPTION | DYNASCAN PART NO. |
|---|---|---|

## "A" TRIG SWITCH ASSEMBLY
(X77-1110-01)

### RESISTORS

Standard value resistors are not listed. These are readily available from your local parts distributor. See schematic diagram for value. Unless specified otherwise on schematic, such resistors are ±5%, 1/6 W.

| | | |
|---|---|---|
| R26, 27 | 3 kΩ ±1%, 1/8 W Metal Film | 013-052-9-023 |
| R32, 33 | 220 Ω ±1%, 1/8 W Metal Film | 013-052-9-020 |
| R34, 35 | 1.5 kΩ ±1%, 1/8 W Metal Film | 013-052-9-022 |
| R36 | 750 Ω ±1%, 1/8 W Metal Film | 013-052-9-017 |
| R37, 38 | 270 Ω ±1%, 1/8 W Metal Film | 013-052-9-021 |
| VR1/S4 | 5 kΩ Potentiometer with Rotary Switch, TRIG LEVEL Control | 008-434-9-006 |
| VR2 | 10 kΩ Trimpot | 008-434-9-007 |
| VR3 | 100 Ω Trimpot | 008-434-9-004 |

### CAPACITORS

| | | |
|---|---|---|
| C1 | .01 µF, 630 V Metal Film | 033-023-9-002 |
| C2, 3 | 68 pF ±5%, 50 V Ceramic Disc | 020-215-9-008 |
| C6, 8, 14, 18-22, 26-28, 30, 31 | .01 µF ±10%, 50 V Ceramic Disc | 020-296-9-001 |
| C7 | 3.3 µF ±20%, 50 V Electrolytic | 022-226-9-009 |
| C9, 10, 13 | 22 pF ±5%, 50 V Ceramic Disc | 020-215-9-002 |
| C15, 23 | 1 µF, 35 V Tantalum | 033-054-9-001 |
| C16, 17, 24, 25 | 33 µF ±20%, 16 V Electrolytic | 022-226-9-008 |
| TC1 | 20 pF Trimmer | 028-065-9-004 |

### DIODES AND TRANSISTORS

| | | |
|---|---|---|
| D1-5 | DS442X, Silicon Switching Diode | 151-097-9-001 |
| Q3, 4 | 2SC536KNP-F, NPN Silicon Signal Transistor | 176-114-9-001 |
| Q5 | DN1901, Dual FET | 182-070-9-001 |
| Q6, 7 | 2SC1215-T or -S, NPN Silicon Signal Transistor | 176-114-9-003 |
| Q8, 9 | 2SA1161, PNP Silicon Signal Transistor | 177-018-9-003 |
| Q10 | 2SC2671, NPN Silicon Signal Transistor | 176-130-9-001 |

### INTEGRATED CIRCUITS

| | | |
|---|---|---|
| IC1 | CA3102E, Linear IC | 307-259-9-018 |

### MISCELLANEOUS

| | | |
|---|---|---|
| L1, 2 | 22 µH Ferri-Inductor | 041-068-9-004 |
| S1 | Lever Switch, SOURCE | 080-004-9-002 |
| S2 | Lever Switch, COUPLING | 080-003-9-002 |

| SCHEMATIC SYMBOL | DESCRIPTION | DYNASCAN PART NO. |
|---|---|---|

## "B" TRIG SWITCH ASSEMBLY
(X77-1120-01)

### RESISTORS

Standard value resistors are not listed. These are readily available from your local parts distributor. See schematic diagram for value. Unless specified otherwise on schematic, such resistors are ±5%, 1/6 W.

| | | |
|---|---|---|
| R13, 14 | 3 kΩ ±1%, 1/8 W Metal Film | 013-052-9-023 |
| R19, 20 | 220 Ω ±1%, 1/8 W Metal Film | 013-052-9-020 |
| R21, 22 | 1.5 kΩ ±1%, 1/8 W Metal Film | 013-052-9-022 |
| R23 | 750 Ω ±1%, 1/8 W Metal Film | 013-052-9-017 |
| R24, 25 | 270 Ω ±1%, 1/8 W Metal Film | 013-052-9-021 |
| VR1/S3 | 5 kΩ Potentiometer with Rotary Switch, TRIG LEVEL Control | 008-434-9-008 |
| VR2 | 10 kΩ Trimpot | 008-434-9-007 |
| VR3 | 100 Ω Trimpot | 008-434-9-004 |

### CAPACITORS

| | | |
|---|---|---|
| C1 | .01 µF, 630 V Metal Film | 033-023-9-002 |
| C4, 9, 10, 14-17, 21-23 | .01 µF ±10%, 50 V Ceramic Disc | 020-296-9-001 |
| C5, 6 | 22 pF ±5%, 50 V Ceramic Disc | 020-215-9-002 |
| C11, 18 | 1 µF, 35 V Tantalum | 033-054-9-001 |
| C12, 13, 19, 20 | 33 µF ±20%, 16V Electrolytic | 022-226-9-008 |
| C24 | 10 µF ±20%, 16V Electrolytic | 022-226-9-004 |
| TC1 | 20 pF Trimmer | 028-065-9-004 |

### DIODES AND TRANSISTORS

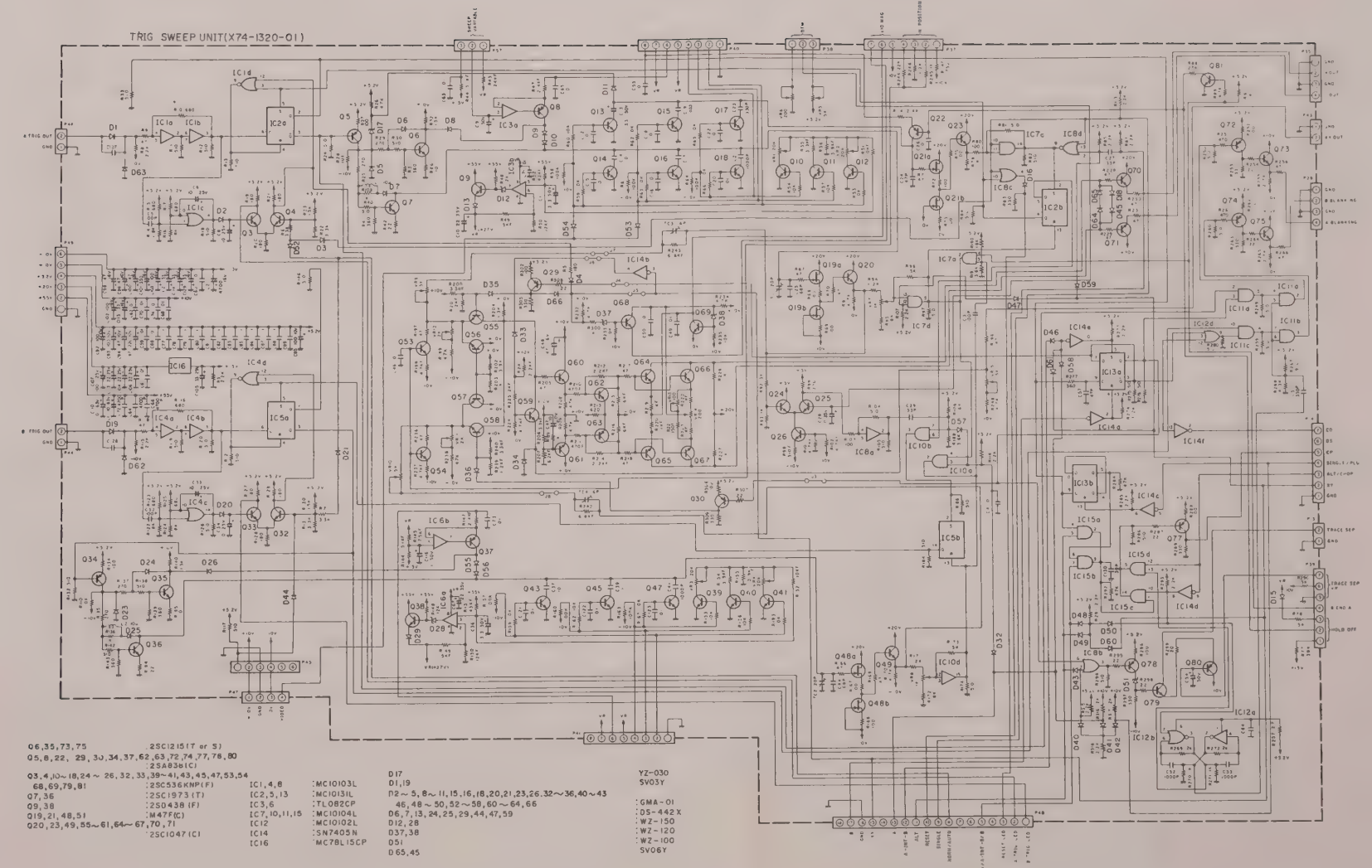
| | | |
|---|---|---|
| D1 | WZ-081, 8.1 V Zener Diode | 152-054-9-001 |
| Q1, 3, 4 | 2SC1215-T or -S, NPN Silicon Signal Transistor | 176-114-9-003 |
| Q2 | DN1901, Dual FET | 182-070-9-001 |
| Q5, 6 | 2SA1161, PNP Silicon Signal Transistor | 177-048-9-003 |
| Q7 | 2SC2499, NPN Silicon Signal Transistor | 176-114-9-006 |

### INTEGRATED CIRCUITS

| | | |
|---|---|---|
| IC1 | CA3102E, Linear IC | 307-259-9-018 |

### MISCELLANEOUS

| | | |
|---|---|---|
| L1, 2 | 22 µH Ferri-Inductor | 041-068-9-004 |
| S1 | Lever Switch | 080-004-9-002 |




Q6,35,73,75 :2SC1215(T or S)
Q5,8,22, 29, 30,34,37,62,63,72,74,77,78,80 :2SA683(C)
Q3,4,10~18,24~26,32,33,39~41,43,45,47,53,54 68,69,79,81 :2SC536KNP(F)
Q7,36 :2SC1973(T)
Q9,38 :2SD438(F)
Q19,21,48,51 :M47F(C)
Q20,23,49,55~61,64~67,70,71 :2SC1047(C)

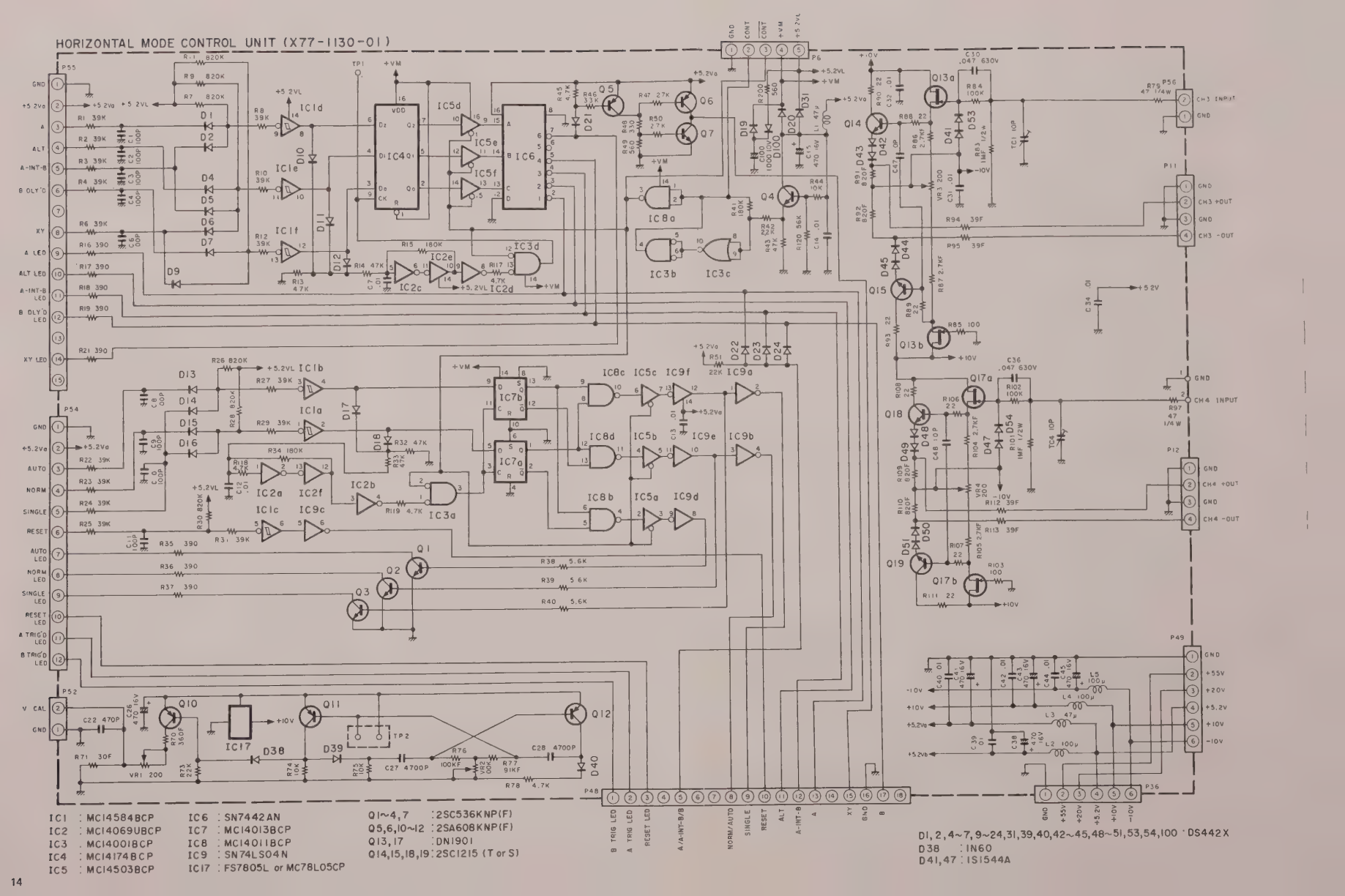
IC1,4,8 :MC10103L
IC2,5,13 :MC10131L
IC3,6 :TL082CP
IC7,10,11,15 :MC10104L
IC12 :MC10102L
IC14 :SN7405N
IC16 :MC78L15CP

D17
D1,19
D2~5,8~11,15,16,18,20,21,23,26,32~36,40~43 46,48~50,52~58,60~64,66
D6,7,13,24,25,29,44,47,59
D12,28
D37,38
D51
D65,45

YZ-030
SV03Y

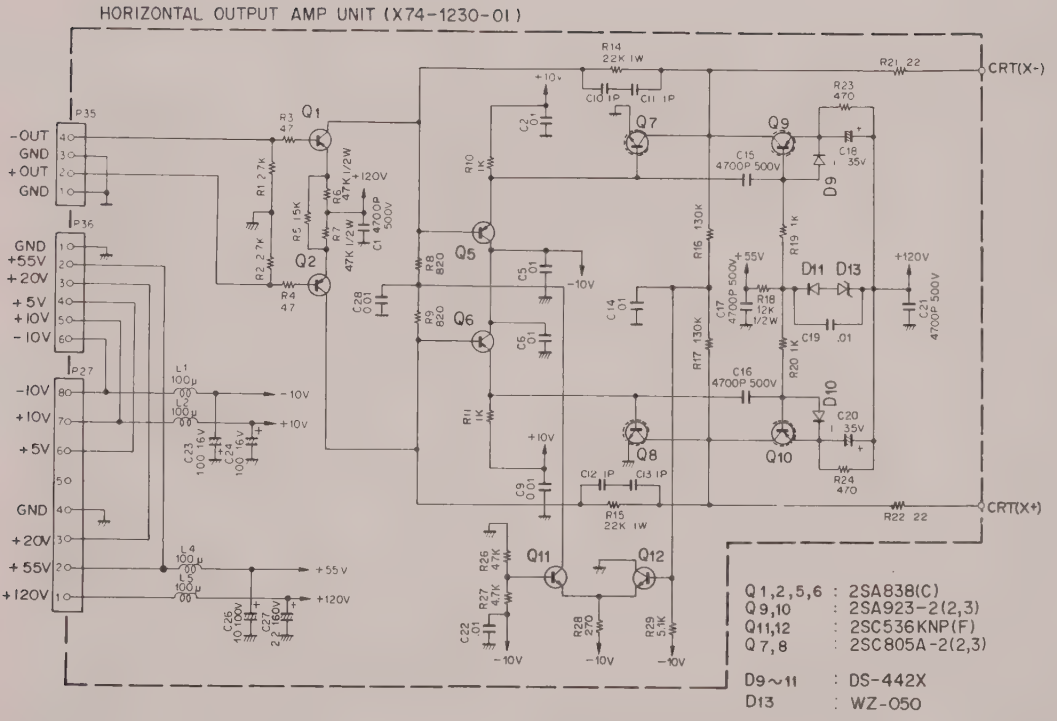
GMA-01
DS-442X
WZ-150
WZ-120
WZ-100
SV06Y

| SCHEMATIC SYMBOL | DESCRIPTION | DYNASCAN PART NO. |
|---|---|---|
| | **TRIGGER & SWEEP ASSEMBLY** (X74-1320-01) | |
| | **RESISTORS** | |
| | Standard value resistors are not listed. These are readily available from your local parts distributor. See schematic diagram for value. Unless specified otherwise on schematic, such resistors are ±5%, 1/6 W. | |
| R43, 47, 147 | 2.4 kΩ ±1%, 1/8 W Metal Film | 013-052-9-029 |
| R44, 144 | 5.1 kΩ ±1%, 1/8 W Metal Film | 013-052-9-003 |
| R[illegible], 149 | 15 kΩ ±1%, 1/8 W Metal Film | 015-144-1-502 |
| R[illegible], 150 | 12 kΩ ±1%, 1/8 W Metal Film | 013-053-9-003 |
| R51, 152 | 10 kΩ ±1%, 1/8 W Metal Film | 015-144-1-002 |
| R52, 151 | 43 kΩ ±1%, 1/8 W Metal Film | 013-073-9-002 |
| R[illegible], 56, 154, 155 | 3.9 kΩ ±1%, 1/8 W Metal Film | 013-052-9-002 |
| R[illegible] | 510 Ω ±1%, 1/8 W Metal Film | 013-073-9-001 |
| R101, 102, 198, 224, 237 | 4.7 kΩ ±1%, 1/8 W Metal Film | 013-052-9-030 |
| R[illegible]5 | 7.5 kΩ ±1%, 1/8 W Metal Film | 015-144-7-501 |
| R[illegible]0, 206, 240 | 3.3 kΩ ±1%, 1/8 W Metal Film | 013-073-9-003 |
| R201, 239 | 1.2 kΩ ±1%, 1/8 W Metal Film | 013-052-9-034 |
| R207 | 6.2 kΩ ±1%, 1/8 W Metal Film | 013-073-9-004 |
| R[illegible].0, 211 | 470 Ω ±1%, 1/8 W Metal Film | 013-052-9-027 |
| R[illegible]12, 214, 241 | 2.2 kΩ ±1%, 1/8 W Metal Film | 013-052-9-028 |
| R219, 220, 222, 223 | 1 kΩ ±1%, 1/8 W Metal Film | 013-052-9-043 |
| R[illegible].5, 216 | 1.6 kΩ ±1%, 1/8 W Metal Film | 013-052-9-033 |
| R[illegible]21 | 150 Ω ±1%, 1/8 W Metal Film | 013-052-9-031 |
| R[illegible]42, 243 | 6.8 kΩ ±1%, 1/8 W Metal Film | 013-052-9-025 |
| R225 | 2 kΩ ±1%, 1/8 W Metal Film | 013-052-9-018 |
| VR[illegible]1-4 | 20 kΩ Trimpot | 008-446-9-001 |
| VR[illegible]5, 9, 10, 15 | 5 kΩ Trimpot | 008-434-9-011 |
| VR[illegible]6, 14 | 200 Ω Trimpot | 008-434-9-001 |
| VR7, 8 | 1 kΩ Trimpot | 008-434-9-012 |
| VR[illegible]11, 12 | 2 kΩ Trimpot | 008-434-9-011 |
| VR[illegible]13 | 100 Ω Trimpot | 008-434-9-002 |
| | **CAPACITORS** | |
| C[illegible] | 4700 µF ±20%, 16 V Electrolytic | 022-225-9-003 |
| C[illegible]5, 32 | 100 pF ±5%, 50 V Ceramic Disc | 020-096-9-006 |
| C4, 12, 15, 16, 18, 20, 22, 26, [illegible]5, 49, 50, 55, [illegible]5, 59-63, 65, [illegible]74, 121-123 | 0.01 µF ±10%, 50 V Ceramic Disc | 020-296-9-001 |
| C6, 8, 28, 33, 34 | 10 µF ±20%, 25 V Electrolytic | 022-086-9-005 |
| C[illegible], 54, 116 | 1 µF ±20%, 50 V Electrolytic | 022-226-9-017 |
| C[illegible]), 67 | 22 µF ±20%, 35 V Electrolytic | 022-244-9-001 |
| C[illegible]1, 13, 36 | 3.3 µF ±20%, 50 V Electrolytic | 022-226-9-009 |
| C14, 37 | 10 µF ±1%, 100 V Polyester | 033-065-9-001 |
| C17, 39 | 0.1 µF ±1%, 100 V Polypropylene | 030-062-9-001 |
| C19 | 0.033 µF ±10%, 50 V Mylar | 025-056-9-004 |
| C21, 41 | 1000 pF ±1%, 100 V Polypropylene | 030-062-9-001 |
| C23, 51 | 330 pF ±5%, 50 V Ceramic Disc | 020-158-9-004 |
| C24, 57 | 47 pF ±5%, 50 V Ceramic Disc | 020-103-9-003 |
| C25, 44 | 68 pF ±5%, 100 V Mica | 023-079-9-001 |
| C27, 29 | 33 pF ±5%, 50 V Ceramic Disc | 020-103-9-002 |
| C47 | 10 µF ±20%, 10V Electrolytic | 000-000-9-001 |
| C48, 98, 99, 100 | 47 µF ±20%, 16 V Electrolytic | 022-226-9-012 |
| C52, 53 | 1000 pF ±5%, 50 V Mica | 000-000-9-000 |
| C64, 66, 72 | 4700 pF ±10%, 500 V Ceramic Disc | 020-302-9-003 |
| C77-89, 127, 128 | 0.1 µF, 12 V Semiconductor Ceramic | 033-018-9-001 |
| C92, 93, 95 | 100 µF ±20%, 10 V Electrolytic | 022-226-9-013 |
| C94 | 47 µF ±20%, 10 V Electrolytic | 022-119-9-004 |
| C97 | 220 µF ±20%, 10 V Electrolytic | 022-225-9-001 |
| C101 | 330 µF ±20%, 16V Electrolytic | 022-244-9-003 |
| C102, 103 | 100 µF ±20%, 16 V Electrolytic | 022-225-9-002 |
| C104, 106, 113 | 22 µF ±20%, 25 V Electrolytic | 022-119-9-005 |
| C105 | 33 µF ±20%, 25 V Electrolytic | 022-135-9-001 |
| C107 | 100 µF ±20%, 25 V Electrolytic | 022-226-9-002 |
| C110, 111 | 10 µF ±20%, 63 V Electrolytic | 022-244-9-002 |
| C112, 114, 115, 129 | 33 µF ±20%, 16 V Electrolytic | 022-226-9-008 |
| C130 | 39 pF ±5%, 50V Ceramic Disc | 020-171-9-006 |
| TC1, 2 | 20 pF Trimmer | 028-057-9-001 |
| TC3, 4 | 6 pF Trimmer | 028-065-9-003 |
| | **DIODES** | |
| D1, 19 | SV03Y, Varistor | 153-022-9-001 |
| D2-5, 8-11, 15, 16, 18, 20, 21, 23, 26, 32-36, 40-43, 46, 48, 50, 52~58, 60~64, 66 | GMA-01, Silicon Diode | 151-111-9-001 |
| D6, 7, 13, 24, 25, 29, 44, 47, 59 | DS442X, Silicon Switching Diode | 151-097-9-001 |
| D12, 28 | WZ-150, 15 V Zener Diode | 152-070-9-001 |
| D17 | YZ-030, 3.0 V Zener Diode | 152-099-9-002 |
| D37, 38 | WZ-120, 12 V Zener Diode | 152-110-9-001 |
| D45, 65 | SV06Y, Varistor | 153-019-9-001 |
| D51 | WZ-100, 10 V Zener Diode | 152-050-9-002 |
| | **TRANSISTORS** | |
| Q3, 4, 10-18, 24-26, 32, 33, 39-41, 43, 45 47, 53, 54, 68, 69, 79, 81 | 2SC536KNP-F, NPN Silicon Signal Transistor | 176-114-9-001 |
| Q5, 8, 22, 29, 30, 34, 37, 62, 63, 72, 74, 77, 78, 80 | 2SA838-C, PNP Silicon Signal Transistor | 177-036-9-001 |
| Q6, 35, 73, 75 | 2SC1215-T or -S, NPN Silicon Signal Transistor | 176-114-9-003 |
| Q7, 36 | 2SC1973-T, NPN Silicon Signal Transistor | 176-099-9-002 |
| Q9, 38 | 2SD438-F, NPN Silicon Power Transistor | 172-058-9-002 |
| Q19, 21, 48, 51 | M74F-C, Dual FET | 182-071-9-001 |
| Q20, 23, 49, 55-61, 64-67, 70, 71 | 2SC1047-C, NPN Silicon Signal Transistor | 176-075-9-001 |
| | **INTEGRATED CIRCUITS** | |
| IC1, 4, 8 | MC10103L, CMOS IC | 307-309-9-003 |
| IC2, 5, 13 | MC10131L, CMOS IC | 307-309-9-005 |
| IC3, 6 | TL082CP, Linear IC | 307-259-9-019 |
| IC7, 10, 11, 15 | MC10104L, CMOS IC | 307-309-9-004 |
| IC12 | MC10102L, CMOS IC | 307-301-9-001 |
| IC14 | SN7405N, Digital IC | 307-309-9-006 |
| IC16 | MC78L15CP, 15 Volt Regulator | 307-309-9-007 |
| | **MISCELLANEOUS** | |
| L1, 2 | 10 µH Ferri-Inductor | 041-133-9-001 |

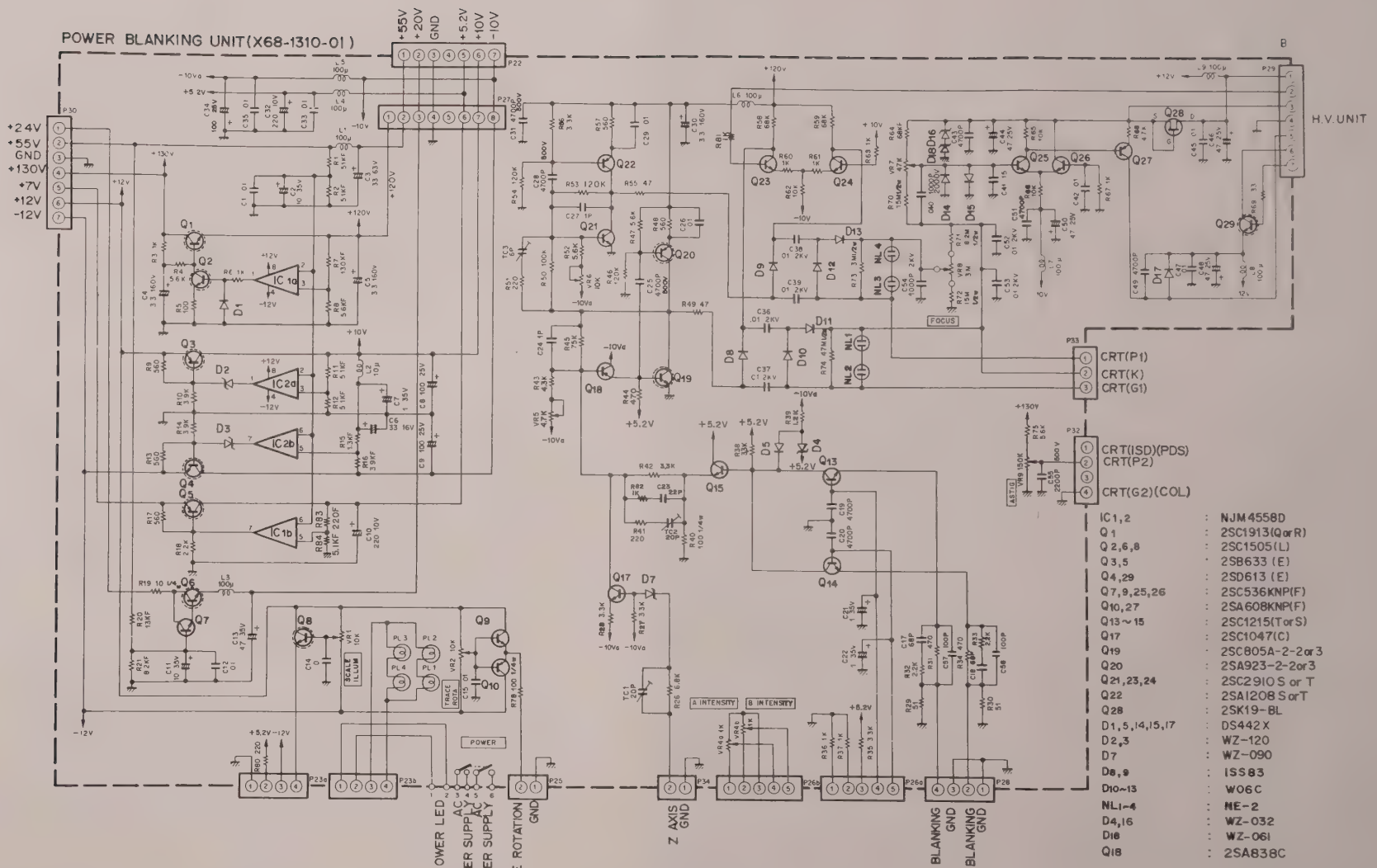

HORIZONTAL MODE CONTROL UNIT (X77-1130-01)
P55
P54
P52
P6
P56
P11
P12
P49
P36
P48
IC1 : MC14584BCP
IC2 : MC14069UBCP
IC3 : MC14001BCP
IC4 : MC14174BCP
IC5 : MC14503BCP
IC6 : SN7442AN
IC7 : MC14013BCP
IC8 : MC14011BCP
IC9 : SN74LS04N
IC17 : FS7805L or MC78L05CP
Q1~4,7 : 2SC536KNP(F)
Q5,6,10~12 : 2SA608KNP(F)
Q13,17 : DN1901
Q14,15,18,19 : 2SC1215 (T or S)
D1, 2, 4~7, 9~24, 31, 39, 40, 42~45, 48~51, 53, 54, 100 : DS442X
D38 : IN60
D41, 47 : 1S1544A

| SCHEMATIC SYMBOL | DESCRIPTION | DYNASCAN PART NO. |
|---|---|---|
| | **HORIZONTAL MODE CONTROL ASSEMBLY** (X77-1130-01) | |
| | **RESISTORS** | |
| | Standard value resistors are not listed. These are readily available from your local parts distributor. See schematic diagram for value. Unless specified otherwise on schematic, such resistors are ±5%, 1/6 W. | |
| R70 | 360 Ω ±1%, 1/8 W Metal Film | 013-052-9-011 |
| R71 | 30 Ω ±1%, 1/8 W Metal Film | 013-052-9-009 |
| R76 | 100 kΩ ±1%, 1/8 W Metal Film | 013-052-9-015 |
| R77 | 91 kΩ ±1%, 1/8 W Metal Film | 013-052-9-014 |
| R83, 101 | 1 MΩ ±1%, 1/2 W Metal Film | 013-008-9-023 |
| R86, 87, 104, 105 | 2.7 kΩ ±1%, 1/8 W Metal Film | 013-052-9-013 |
| R91, 92, 109, 110 | 820 Ω ±1%, 1/8 W Metal Film | 013-052-9-012 |
| R94, 95, 112, 113 | 39 Ω ±1%, 1/8 W Metal Film | 013-052-9-010 |
| VR1, | 200 Ω Trimpot | 008-434-9-009 |
| VR2 | 100 kΩ Trimpot | 008-434-9-010 |
| | **CAPACITORS** | |
| C1-4, 6, 8-11 | 100 pF ±5%, 50 V Ceramic Disc | 020-096-9-006 |
| C7, 12-14, 31, 32, 34, 40, 42, 44 | .01 µF ±10%, 50 V Ceramic Disc | 020-296-9-001 |
| C15, 26, 41, 43, 45 | 470 µF ±20%, 16 V Electrolytic | 022-226-9-006 |
| C22 | 470 pF ±5%, 50 V Ceramic Disc | 020-233-9-003 |
| C27, 28 | 4700 pF ±1%, 100 V Polypropylene | 025-179-9-001 |
| C30, 36 | 0.047 µF, 630 V Metal Film | 033-023-9-001 |
| C47, 48 | 10 pF ±0.5 pF, 50 V Ceramic Disc | 020-215-9-001 |
| C100 | 1000 µF, 10 V Electrolytic | 033-060-9-001 |
| TC1, 4 | 10 pF Trimmer | 028-065-9-002 |
| | **DIODES** | |
| D1, 2, 4-7, 9-24, 31, 39, 40, 42-45, 48-51, 53, 54, 100 | DS442X, Silicon Switching Diode | 151-097-9-001 |
| D38 | 1N60, Germanium Diode | 150-001-9-005 |
| D41, 47 | 1S1544A, Silicon Diode | 151-096-9-001 |
| | **TRANSISTORS** | |
| Q1-4, 7 | 2SC536KNP-F, NPN Silicon Signal Transistor | 176-114-9-001 |
| Q5, 6, 10-12 | 2SA608KNP-F, PNP Silicon Signal Transistor | 177-048-9-001 |
| Q13, 17 | DN1901, Dual FET | 182-070-9-001 |
| Q14, 15, 18, 19 | 2SC1215-T or -S, NPN Silicon Signal Transistor | 176-114-9-003 |

| SCHEMATIC SYMBOL | DESCRIPTION | DYNASCAN PART NO. |
|---|---|---|
| | **INTEGRATED CIRCUITS** | |
| IC1 | MC14584BCP, CMOS IC | 307-259-9-007 |
| IC2 | MC14069UBCP, CMOS IC | 307-259-9-004 |
| IC3 | MC14001BCP, CMOS IC | 307-259-9-001 |
| IC4 | MC14174BCP, CMOS IC | 307-259-9-005 |
| IC5 | MC14503BCP, CMOS IC | 307-259-9-006 |
| IC6 | SN7442AN, Digital IC | 307-259-9-008 |
| IC7 | MC14013BCP, CMOS IC | 307-259-9-003 |
| IC8 | MC14011BCP, CMOS IC | 307-259-9-002 |
| IC9 | SN74LS04N, Digital IC | 307-259-9-009 |
| IC17 | MC78L05CP, Regulator IC | 307-305-9-001 |
| | **MISCELLANEOUS** | |
| L1, 3 | 47 µH Ferri-Inductor | 041-068-9-002 |
| L4, 5 | 100 µH Ferri-Inductor | 041-124-9-001 |




| SCHEMATIC SYMBOL | DESCRIPTION | DYNASCAN PART NO. |
|---|---|---|
| | **HORIZONTAL OUTPUT AMP ASSEMBLY** (X74-1230-01) | |
| | **RESISTORS** | |
| | Standard value resistors are not listed. These are readily available from your local parts distributor. See schematic diagram for value. Unless specified otherwise on schematic, such resistors are ±5%, 1/6 W. | |
| R14, 15 | 22 kΩ ±5%, 1 W Carbon | 001-001-5-223 |
| | **CAPACITORS** | |
| C1, 15, 16, 17, 21 | 4700 pF ±10%, 500 V Ceramic Disc | 020-302-9-003 |
| C2, 5, 6, 9, 14, 19, 22, 28 | .01 μF ±10%, 50 V Ceramic Disc | 020-296-9-001 |
| C10, 11, 12, 13 | 1 pF ±0.25 pF, 500 V Ceramic Disc | 020-142-9-008 |
| C18, 20 | 1 μF, 35 V Tantalum | 033-054-9-001 |
| C23, 24 | 100 μF ±20%, 16 V Electrolytic | 022-225-9-002 |
| C26 | 10 μF ±20%, 100 V Electrolytic | 021-069-9-002 |
| C27 | 2.2 μF ±20%, 160 V Electrolytic | 021-069-9-003 |
| | **DIODES** | |
| D9, 10, 11 | DS442X, Silicon Switching Diode | 151-097-9-001 |
| D13 | WZ-050, 5 V Zener Diode | 152-069-9-001 |
| | **TRANSISTORS** | |
| Q1, 2, 5, 6 | 2SA838-C, PNP Silicon Signal Transistor | 177-036-9-001 |
| Q7, 8 | 2SC805A-2-2 or -3, NPN Silicon Signal Transistor | 176-114-9-002 |
| Q9, 10 | 2SA923-2-2 or -3, PNP Silicon Signal Transistor | 177-041-9-001 |
| Q11, 12 | 2SC536KNP-F, NPN Silicon Signal Transistor | 176-114-9-001 |
| | **INDUCTORS** | |
| L1, 2, 4, 5 | 100 μH Ferri Inductor | 041-133-9-004 |




| | | |
|---|---|---|
| IC1,2 | : | NJM4558D |
| Q1 | : | 2SC1913(QorR) |
| Q2,6,8 | : | 2SC1505(L) |
| Q3,5 | : | 2SB633 (E) |
| Q4,29 | : | 2SD613 (E) |
| Q7,9,25,26 | : | 2SC536KNP(F) |
| Q10,27 | : | 2SA608KNP(F) |
| Q13~15 | : | 2SC1215(TorS) |
| Q17 | : | 2SC1047(C) |
| Q19 | : | 2SC805A-2-2or3 |
| Q20 | : | 2SA923-2-2or3 |
| Q21,23,24 | : | 2SC2910S or T |
| Q22 | : | 2SA1208SorT |
| Q28 | : | 2SK19-BL |
| D1,5,14,15,17 | : | DS442X |
| D2,3 | : | WZ-120 |
| D7 | : | WZ-090 |
| D8,9 | : | ISS83 |
| D10~13 | : | W06C |
| NL1~4 | : | NE-2 |
| D4,16 | : | WZ-032 |
| D18 | : | WZ-061 |
| Q18 | : | 2SA838C |

| SCHEMATIC SYMBOL | DESCRIPTION | DYNASCAN PART NO. |
|---|---|---|
| | **POWER SUPPLY & BLANKING ASSEMBLY** (X68-1310-01) | |
| | **RESISTORS** | |
| | Standard value resistors are not listed. These are readily available from your local parts distributor. See schematic diagram for value. Unless specified otherwise on schematic, such resistors are ±5%, 1/6W. | |
| R1 | 51 kΩ ±1%, 1/8 W Metal Film | 013-052-9-007 |
| R2, 11, 12, 84 | 5.1 kΩ ±1%, 1/8 W Metal Film | 013-052-9-003 |
| R7 | 130 kΩ ±1%, 1/8 W Metal Film | 013-052-9-008 |
| R8 | 5.6 kΩ ±1%, 1/8 W Metal Film | 013-052-9-004 |
| R15 | 1.3 kΩ ±1%, 1/8 W Metal Film | 013-052-9-001 |
| R16 | 3.9 kΩ ±1%, 1/8 W Metal Film | 013-052-9-002 |
| R20 | 13 kΩ ±1%, 1/8 W Metal Film | 013-052-9-006 |
| R21 | 8.2 kΩ ±1%, 1/8 W Metal Film | 013-052-9-005 |
| R64 | 68 kΩ 1%, 1/8 W Metal Film | 013-065-9-002 |
| R70 | 15 MΩ, 1/2W Metal Glaze Film | 004-193-9-002 |
| R71 | 8.2 MΩ, 1/2 W Solid Resistor | 001-102-5-825 |
| R72 | 15 MΩ, 1/2 W Solid Resistor | 001-102-5-156 |
| R73 | 3 MΩ, 1/2W Metal Glaze Film | 004-193-9-001 |
| R74 | 47 MΩ, 1/2W Metal Glaze Film | 004-181-9-002 |
| R83 | 220Ω ±1%, 1/8W Metal Film | 013-052-9-020 |
| VR1 | 10 kΩ Potentiometer with Switch, SCALE ILLUM/POWER Control | 008-406-9-006 |
| VR2, 6 | 10 kΩ Trimpot, | 008-298-9-010 |
| VR4 | Dual 1 kΩ Potentiometer, A INTENSITY, B INTENSITY Control | 008-406-9-005 |
| VR5 | 4.7 kΩ Trimpot | 008-298-9-009 |
| VR7 | 47 kΩ Trimpot | 008-298-9-012 |
| VR8 | 3 MΩ Potentiometer, FOCUS Control | 008-390-9-001 |
| VR9 | 150 kΩ Trimpot, ASTIG Control | 008-406-9-007 |
| | **CAPACITORS** | |
| C1, 12, 14, 15, 26, 29, 33, 35, 42, 45, 47 | .01 µF ±10%, 50 V Ceramic Disc | 020-296-9-001 |
| C2, 11 | 10 µF ±20%, 35 V Electrolytic | 022-226-9-003 |
| C3 | 33 µF ±20%, 63 V Electrolytic | 022-226-9-005 |
| C4, 5, 30 | 3.3 µF ±20%, 160 V Electrolytic | 021-069-9-001 |
| C6 | 33 µF ±20%, 16 V Electrolytic | 022-226-9-008 |
| C7, 21, 22 | 1 µF, 35 V Tantalum | 033-054-9-001 |
| C8, 9, 34 | 100 µF ±20%, 25 V Electrolytic | 022-226-9-002 |
| C10, 32 | 220 µF ±20%, 10 V Electrolytic | 022-225-9-001 |
| C13 | 47 µF ±20%, 35 V Electrolytic | 022-226-9-004 |
| C17, 18 | 68 pF ±5%, 50 V Ceramic Disc | 020-142-9-006 |
| C19, 20, 43, 51 | 4700 pF ±10%, 50 V Ceramic Disc | 020-302-9-001 |
| C23 | 22 pF ±5%, 50 V Ceramic Disc | 020-215-9-002 |
| C24, 27 | 1 pF ±0.25 pF, 500 V Ceramic Disc | 020-142-9-008 |
| C25, 28, 31 | 4700 pF ±10%, 500 V Ceramic Disc | 020-302-9-003 |
| C36, 37, 38, 39, 52, 53 | .01 µF ±100/-0%, 2 kV Ceramic Disc | 020-124-9-011 |
| C40, 54 | 1000 pF ±100/-0%, 2 kV Ceramic Disc | 020-226-9-002 |
| C41 | 0.15 µF ±10%, 50 V Mylar | 025-192-9-001 |

| SCHEMATIC SYMBOL | DESCRIPTION | DYNASCAN PART NO. |
|---|---|---|
| C44, 46, 48, 50 | 47 µF ±20%, 25 V Electrolytic | 022-226-9-001 |
| C49 | 4700 pF ±5%, 50 V Mylar | 025-107-9-007 |
| C55 | 2200 pF ±10%, 500 V Ceramic Disc | 020-302-9-004 |
| C57, 58 | 100 pF ±5%, 50 V Ceramic Disc | 020-096-9-006 |
| TC1, 2 | 20 pF Trimmer | 028-050-9-002 |
| TC3 | 6 pF Trimmer | 028-050-9-001 |
| | **DIODES** | |
| D1, 5, 14, 15, 17 | DS442X, Silicon Switching Diode | 151-097-9-001 |
| D2, 3 | WZ-120, 12 V Zener Diode | 152-110-9-001 |
| D4, 16 | WZ-032, 3.2 V Zener Diode | 152-119-9-001 |
| D7 | WZ-090, 9 V Zener Diode | 152-069-9-002 |
| D8, 9 | 1SS83, Silicon HV Switching Diode | 151-084-9-001 |
| D10-13 | W06C, Silicon HV Rectifier Diode | 151-052-9-002 |
| D18 | WZ-061, 6.1 V Zener Diode | 152-052-9-002 |
| | **TRANSISTORS** | |
| Q1 | 2SC2913-Q or-R, NPN Silicon Power Transistor | 172-054-9-001 |
| Q2, 6, 8 | 2SC1505-L, NPN Silicon Power Transistor | 172-058-9-001 |
| Q3, 5 | 2SB633-E, PNP Silicon Power Transistor | 173-010-9-001 |
| Q4, 29 | 2SD613-E, NPN Silicon Transistor | 176-104-9-002 |
| Q7, 9, 25, 26 | 2SC536KNP-F, NPN Silicon Signal Transistor | 176-114-9-001 |
| Q10, 27 | 2SA608KNP-F, PNP Silicon Signal Transistor | 177-048-9-001 |
| Q13, 14, 15 | 2SC1215-T or -S, NPN Silicon Signal Transistor | 176-114-9-003 |
| Q17 | 2SC1047-C, NPN Silicon Signal Transistor | 176-075-9-001 |
| Q18 | 2SA838-C, PNP Silicon Signal Transistor | 177-036-9-001 |
| Q19 | 2SC805A-2-2 or 3, NPN Silicon Signal Transistor | 176-114-9-002 |
| Q20 | 2SA923-2-2 or -3, PNP Silicon Signal Transistor | 177-041-9-001 |
| Q21, 23, 24 | 2SC2910-T or S, NPN Silicon Signal Transistor | 176-126-9-001 |
| Q22 | 2SA1208-T or S, PNP Silicon Signal Transistor | 177-053-9-001 |
| Q28 | 2SK19-BL, FET | 182-056-9-001 |
| | **INTEGRATED CIRCUITS** | |
| IC1, 2 | NJM4558D, Linear IC | 307-139-9-004 |
| | **MISCELLANEOUS** | |
| L1, 3, 4, 5, 6, 8, 9 | 100 µH Ferri-Inductor | 041-133-9-004 |
| L2 | 10 µH Ferri-Inductor | 041-133-9-003 |
| L7 | 100 µH Ferri-Inductor | 041-124-9-001 |
| NL1-4 | Neon Lamp, NE-2B | 401-024-9-001 |
| PL1-4 | Lamp, Scale Illumination | 400-082-9-001 |

## U.S.A. PARTS ORDERING INFORMATION

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Composite (Schematic & Parts List)

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